

IN THE SPECIFICATION:

Please amend the specification as follows:

Pursuant to 37 CFS § 1.121(b)(1)(iii), a marked up copy of the each paragraph amended below appears on the page immediately following each amendment.

Please delete line 4 on page 1, and insert the following therefor:

-- BACKGROUND --

Please delete line 5 on page 1.

Please delete the paragraph that begins on page 1, line 6 and ends on page 1, line 7 and insert the following therefor:

Q1 --This disclosure relates to audio speakers, and more particularly to a system for performing self-diagnostics on audio speaker systems.--

Please delete line 8 on page 1.

Please delete the paragraph that begins on page 3, line 10 and ends on page 3, line 20 and insert the following therefor:

-- SUMMARY

Q2 The present disclosure relates to a self-diagnostic circuit for speaker systems that allows a speaker system to generate its own test signals, e.g., tones, appropriate for the transducer(s) in the speaker system. The test signals are routed to the analog

a3 circuits in the speaker system. The test signals are also routed to the transducers, so that an operator can evaluate speaker output tones. In one embodiment, the test signals are also routed to an analog activity sensor that senses activity in the speaker analog circuit paths and sends a status indicator to be displayed to the operator. In a first embodiment, the self-diagnostic circuit is part of a stand-alone speaker system, such as a home theater sound system. In a second embodiment, the self-diagnostic circuit is included in a speaker system that is included in a computer system. --

Please delete the paragraph that begins on page 5, line 3 and ends on page 5, line 5 and insert the following therefor:

a4 --[The computer system embodiment of the present disclosure includes the speaker system described above, as well as a processor and memory, where the speaker system and memory are both coupled to the processor.]--

Please delete the paragraph that begins on page 5, line 7 and ends on page 5, line 9 and insert the following therefor:

a5 --[The present disclosure may be better understood, and its numerous objects, features, and advantages made apparent to those skilled in the art, by referencing the accompanying drawings]--

Please delete the paragraph that begins on page 5, line 12 and ends on page 5, line 13 and insert the following therefor:

a6 --[FIGURE 2 is a block diagram of an exemplary speaker system embodying the integrated diagnostics of the present disclosure.]--

✓
Please delete the paragraph that begins on page 5, line 21 and ends on page 5, line 23 and insert the following therefor:

a7.
--The following sets forth a detailed description of a mode for carrying out the embodiments. The description is intended to be illustrative of the embodiments and should not be taken to be limiting.--

✓
Please delete the paragraphs that begin on page 7, line 5 and end on page 7, line 23 and insert the following therefor:

a8
--**FIGURE 2** shows an exemplary speaker system **145** embodying the present disclosure. The speaker system **145** includes at least one speaker that includes at least one transducer. **FIGURE 2** shows a speaker system including a left speaker **220** and a right speaker **240**. The speaker system may also include additional speakers, such as a center speaker **210** or rear speakers (not shown) present in many known home theater sound systems. The speaker system **145** may also include at least one subwoofer **230**. Each speaker **210**, **220**, **230**, **240** includes at least one transducer **211**, **221**, **231**, **241**, respectively, and may also include at least one amplifier (not shown).

The speaker system **145** also includes a control circuit **200** embodying the diagnostics circuit **295** of the present disclosure. While the control circuit **200** is depicted in **FIGURE 2** as a discrete element of the speaker system **145**, it may physically reside in the subwoofer **230** (if present) or in another speaker of the speaker system **145**. Alternatively, each speaker of the speaker system **145** could include a separate dedicated control circuit **200**. **FIGURE 2** shows that the control circuit **200** sends a rectified power signal **285** to at least one speaker and at least one diagnostic signal **280**, **282** to each speaker **210**, **220**, **230**, **240** in the speaker system **145**. The control circuit **200** also sends one or more status indicators **206** to each analog test indicator

260a-260n. The analog test indicators **260a-260n** are discussed below in connection with **FIGURE 3**.--

Please delete the paragraph that begins on page 9, line 10 and ends on page 9, line 18 and insert the following therefor:

--)Regarding the speaker analog circuits **290a-290n** shown in **FIGURE 3**, the present disclosure may be implemented in any configuration of speaker system. Various speaker designs include differing speaker analog circuits **290a-290n** because each has different stages of attenuation, power, equalization, etc. Typical examples of speaker analog circuits **290a-290n** include input attenuation, tone processing, master volume control, and equalization. Depending on the configuration of the speaker subsystem, a particular test signal **280, 282** may not be routed to every speaker analog circuit **290a-290n**. The speaker analog circuits **290a-290n** and transducer(s) through which a test signal is designed to flow is referred to as the test signal's test path.--

Please delete the paragraph that begins on page 11, line 7 and ends on page 11, line 27 and insert the following therefor:

--)**FIGURE 4** shows the power diagnostics **270** of the present disclosure. As is shown in **FIGURE 2**, the diagnostics circuit **295** of the present disclosure achieves full analog diagnostic capability for the speaker system by providing power diagnostics **270** in addition to the analog diagnostics **275** described above. **FIGURE 4** shows that the power diagnostics **270** are integral to the power circuit for speaker system **145**, which is a circuit well known in the art. The AC power from the power input is sent through a rectifier **400** that rectifies the AC signal into a rectified signal **285**. **FIGURE 4** shows that the rectified signal **285** is then sent to an AC power test indicator **250**, which indicates to the user or technician whether AC power is being sufficiently supplied to the speaker

9. system 145, and to an AC-to-DC conversion circuit 410 that generates multiple DC voltages 5V, 12V, 24V. While FIGURE 4 shows that the AC-to-DC conversion circuit 410 generates three DC voltages constituting five (5), twelve (12) and twenty-four (24) volts, the AC-to-DC conversion circuit 410 may generate any number of signals having any voltage value known in the art. These DC voltages 5V, 12V, 24V are each routed to a separate DC power test indicator 450a, 450b, 450c, respectively. In this manner the power diagnostics 270 further test power at the output of the AC-to-DC conversion circuit 410 of the power supply design. This provides the analog diagnostic information concerning whether or not DC power is being sufficiently supplied to the circuits on the PCB. The AC power test indicator 250 and DC power test indicators 450a, 450b, 450c are LED circuits in the preferred embodiment.--

✓
Please delete the paragraph that begins on page 12, line 7 and ends on page 12, line 12 and insert the following therefor:

10. --While particular embodiments of the present disclosure have been shown and described, it will be recognized to those skilled in the art that, based upon the teachings herein, further changes and modifications may be made without departing from this disclosure and its broader aspects, and thus, the appended claims are to encompass within their scope all such changes and modifications as are within the true spirit of the scope of this disclosure.--

11. Please delete the paragraph that begins on page 17, line 10 and ends on page 17, line 19 and insert the following therefor:

12. --A self-diagnostic circuit for speaker systems that allows a speaker system to generate its own test signals, e.g., tones, appropriate for the transducer(s) in the speaker system. The test signals are routed to the analog circuits in the speaker

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system. The test signals are also routed to the transducers, so that an operator can evaluate speaker output tones. In one embodiment, the test signals are also routed to an analog activity sensor that senses activity in the speaker analog circuit paths and sends a status indicator to be displayed to the operator. In a first embodiment, the self-diagnostic circuit is a part of a stand-alone speaker system, such as a home theater sound system. In a second embodiment, the self-diagnostic circuit is included in a speaker system that is included in a computer system.

MARKED UP COPY OF AMENDMENT PURSUANT TO 37 CFS § 1.121 (b)(1)(iii)

Page 1, line 4.

BACKGROUND [OF THE INVENTION]

Page 1, line 5.

[Field of the Invention]

Page 1, line 6 to page 1, line 7.

This [invention] disclosure relates to audio speakers, and more particularly to a system for performing self-diagnostics on audio speaker systems.

Page 1, line 8.

[Description of the Related Art]

Page 3, line 10 to page 3, line 20.

SUMMARY [OF THE INVENTION]

The present [invention] disclosure relates to a self-diagnostic circuit for speaker systems that allows a speaker system to generate its own test signals, e.g., tones, appropriate for the transducer(s) in the speaker system. The test signals are routed to the analog circuits in the speaker system. The test signals are also routed to the transducers, so that an operator can evaluate speaker output tones. In one embodiment, the test signals are also routed to an analog activity sensor that senses

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activity in the speaker analog circuit paths and sends a status indicator to be displayed to the operator. In a first embodiment, the self-diagnostic circuit is part of a stand-alone speaker system, such as a home theater sound system. In a second embodiment, the self-diagnostic circuit is included in a speaker system that is included in a computer system.

Page 5, line 3 to page 5, line 5.

The computer system embodiment of the present [invention] disclosure includes the speaker system described above, as well as a processor and memory, where the speaker system and memory are both coupled to the processor.

Page 5, line 7 to page 5, line 9.

The present [invention] disclosure may be better understood, and its numerous objects, features, and advantages made apparent to those skilled in the art, by referencing the accompanying drawings.

Page 5, line 12 to page 5, line 13.

FIGURE 2 is a block diagram of an exemplary speaker system embodying the integrated diagnostics of the present [invention] disclosure.

Page 5, line 21 to page 5, line 23.

The following sets forth a detailed description of a mode for carrying out the [invention] embodiments. The description is intended to be illustrative of the [invention] embodiments and should not be taken to be limiting.

Page 7, line 5 to page 7, line 23.

FIGURE 2 shows an exemplary speaker system **145** embodying the present [invention] disclosure. The speaker system **145** includes at least one speaker that includes at least one transducer. **FIGURE 2** shows a speaker system including a left speaker **220** and a right speaker **240**. The speaker system may also include additional speakers, such as a center speaker **210** or rear speakers (not shown) present in many known home theater sound systems. The speaker system **145** may also include at least one subwoofer **230**. Each speaker **210, 220, 230, 240** includes at least one transducer **211, 221, 231, 241**, respectively, and may also include at least one amplifier (not shown).

The speaker system **145** also includes a control circuit **200** embodying the diagnostics circuit **295** of the present [invention] disclosure. While the control circuit **200** is depicted in **FIGURE 2** as a discrete element of the speaker system **145**, it may physically reside in the subwoofer **230** (if present) or in another speaker of the speaker system **145**. Alternatively, each speaker of the speaker system **145** could include a separate dedicated control circuit **200**. **FIGURE 2** shows that the control circuit **200** sends a rectified power signal **285** to at least one speaker and at least one diagnostic signal **280, 282** to each speaker **210, 220, 230, 240** in the speaker system **145**. The control circuit **200** also sends one or more status indicators **206** to each analog test indicator **260a-260n**. The analog test indicators **260a-260n** are discussed below in connection with **FIGURE 3**.

Page 9, line 10 to page 9, line 18.

Regarding the speaker analog circuits **290a-290n** shown in **FIGURE 3**, the present [invention] disclosure may be implemented in any configuration of speaker

system. Various speaker designs include differing speaker analog circuits **290a-290n** because each has different stages of attenuation, power, equalization, etc. Typical examples of speaker analog circuits **290a-290n** include input attenuation, tone processing, master volume control, and equalization. Depending on the configuration of the speaker subsystem, a particular test signal **280**, **282** may not be routed to every speaker analog circuit **290a-290n**. The speaker analog circuits **290a-290n** and transducer(s) through which a test signal is designed to flow is referred to as the test signal's test path.

Page 11, line 7 to page 11, line 27.

FIGURE 4 shows the power diagnostics **270** of the present [invention] disclosure. As is shown in **FIGURE 2**, the diagnostics circuit **295** of the present [invention] disclosure achieves full analog diagnostic capability for the speaker system by providing power diagnostics **270** in addition to the analog diagnostics **275** described above. **FIGURE 4** shows that the power diagnostics **270** are integral to the power circuit for speaker system **145**, which is a circuit well known in the art. The AC power from the power input is sent through a rectifier **400** that rectifies the AC signal into a rectified signal **285**. **FIGURE 4** shows that the rectified signal **285** is then sent to an AC power test indicator **250**, which indicates to the user or technician whether AC power is being sufficiently supplied to the speaker system **145**, and to an AC-to-DC conversion circuit **410** that generates multiple DC voltages **5V**, **12V**, **24V**. While **FIGURE 4** shows that the AC-to-DC conversion circuit **410** generates three DC voltages constituting five (5), twelve (12) and twenty-four (24) volts, the AC-to-DC conversion circuit **410** may generate any number of signals having any voltage value known in the art. These DC voltages **5V**, **12V**, **24V** are each routed to a separate DC power test indicator **450a**, **450b**, **450c**, respectively. In this manner the power diagnostics **270** further test power at the output of the AC-to-DC conversion circuit **410** of the power supply design. This

provides the analog diagnostic information concerning whether or not DC power is being sufficiently supplied to the circuits on the PCB. The AC power test indicator **250** and DC power test indicators **450a, 450b, 450c** are LED circuits in the preferred embodiment.

Page 12, line 7 to page 12, line 12.

While particular embodiments of the present [invention] disclosure have been shown and described, it will be recognized to those skilled in the art that, based upon the teachings herein, further changes and modifications may be made without departing from this [invention] disclosure and its broader aspects, and thus, the appended claims are to encompass within their scope all such changes and modifications as are within the true spirit of the scope of this [invention] disclosure.

Page 17, line 10 to page 17, line 19.

[The present invention relates to a] A self-diagnostic circuit for speaker systems that allows a speaker system to generate its own test signals, e.g., tones, appropriate for the transducer(s) in the speaker system. The test signals are routed to the analog circuits in the speaker system. The test signals are also routed to the transducers, so that an operator can evaluate speaker output tones. In one embodiment, the test signals are also routed to an analog activity sensor that senses activity in the speaker analog circuit paths and sends a status indicator to be displayed to the operator. In a first embodiment, the self-diagnostic circuit is a part of a stand-alone speaker system, such as a home theater sound system. In a second embodiment, the self-diagnostic circuit is included in a speaker system that is included in a computer system.